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A Revision of the Subgenus *ParophelTes* CAMERON of the Genus *Netelia* GRAY (Hymenoptera, Ichneumonidae) of Japan

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Abstract The subgenus *Paropheltes* of the genus *Netelia* of Japan is revised. Seven species are recognized. Three new species, *N.* (*P.*) *fulginosa*, *N.* (*P.*) *brunea* and *N.* (*P.*) *strigosa*, are described. *N.* (*P.*) *savchenkoi* TOLKANITZ is transferred from the subgenus *Netelia*, recorded from Japan for the first time and redescribed. *N.* (*P.*) *terebrator* (ULBRICHT) is recorded from Japan for the first time and redescribed. *N.* (*P.*) *caucasica* (KOKUJEV) and *N.* (*P.*) *tarsata* (BRISCHKE) are redescribed. A key to the Japanese species of *Paropheltes* is also given.

Key words: Ichneumonidae; revision; *Netelia*; *Paropheltes*; Japan.

Introduction

Netelia is one of the largest genera in the Ichneumonidae and its distribution is worldwide. Adults are crepuscular and/or nocturnal, and frequently coming to light. When handled, females readily inflict a painful sting with the ovipositor. As the other members of the Tryphoninae, *Netelia* species are known to be koinobiont ectoparasitoids. The hosts are variety of lepidopterous larvae. The majority of *Netelia* are uniformly brownish yellow insects and closely similar in appearance. This similarity led several early authors to misidentification and confusion. TOWNES (1938) showed that *Netelia* species can be best distinguished by specialized structures on median surface of male clasper, revised the Nearctic species and divided the genus into 8 subgenera. Since then, the European (DELRIO, 1978), Russian (TOLKANITZ, 1974, 1981a and 1981b), Oriental (KAUR & JONATHAN, 1979) and Korean (CHA & LEE, 1988) species were revised by using the characters of male genitalia and 3 subgenera were added (TOLKANITZ, 1974; KAUR & JONATHAN, 1979; KONISHI, 1986b).

In Japan, UCHIDA (1928 and 1934) studied this genus without using the characters of male genitalia. So, it is needed to revise Japanese species by examining the male genitalia. Up to the present, three subgenera have been already revised, *i.e.*, *Parabates* by KONISHI (1985), *Apatagium* by KONISHI (1986a) and *Prosthodocis* by KONISHI (1991 and 1992). And the subgenus *Paropheltes* is revised in this paper.

The subgenus *Paropheltes* comprises relatively small and rare species in the genus *Netelia*. This subgenus has been known from 42 species recorded from all zoogeographical regions except Neotropical Region. But TOWNES (1938) recorded an unidentified species of the subgenus from Peru, so it is essentially worldwide in distribution (TOWNES, 1969).

In Japan, UCHIDA (1928) described *Paniscus nigrus* from Hokkaido and recorded *Parabatus tarsatus* BRISCHKE from Honshu and Shikoku. Later, *P. nigrus* was synonymized with *Netelia* (*Paropheltes*) *caucasica* (KOKUJEV) by TOLKANITZ (1981). Consequently only two species, *N.* (*P.*) *tarsata* and *N.* (*P.*) *caucasica*, have been recorded from Japan.

In this study, five additional species were recognized from Japan, three of which are described below as new to science. Methods are referred to in KONISHI (1991).

The holotypes of the new species described below are deposited in the collection of the Laboratory of Insect Systematics, National Institute of Agro-Environmental Sciences, Kannondai, Tsukuba, Ibaraki, Japan.

Genus *Netelia* GRAY

Netelia GRAY, 1860, Ann. Mag. nat. Hist., (3), **5**: 341. (Type species: *Paniscus inquinatus* GRAVENHORST, 1829).

Subgenus *Paropheltes* CAMERON

Paropheltes CAMERON, 1907, J. Bombay nat. Hist Soc., **17**: 1011. (Type species: *Paropheltes flavolineatus* CAMERON, 1907).
Netelia (*Paropheltes*): TOWNES, 1938, Lloydia, **1**: 176.

Description based on Japanese species: Head 1.6–1.8 times as wide as long; occiput and interocellar area smooth and polished; occipital carina present dorso-laterally or absent; temple strongly convex; vertex and gena minutely and evenly punctate; upper face finely granulate; lower face 1.3–1.7 times as wide as long, rather strongly punctate than vertex and gena; clypeus 1.8–2.7 times as wide as long, with apical margin truncate; gena 0.3–0.5 as long as width of mandibular base; flagellum 39–54-segmented; 1st flagellar segment 1.3–1.5 times as long as the 2nd, which is 2.5–3.5 times as long as wide.

Mesosoma finely and evenly punctate, polished; pronotum weakly striate laterally; mesoscutum 1.2–1.4 times as long as wide, with notaulus distinct anteriorly and fading out beyond middle; mesoscutellum 1.2–1.8 times as long as distance between lateral carinae at its base, with lateral carina extending to anterior 0.3–0.8 of mesoscutellum; propodeum with trans-striae, with or without lateral crest.

Fore leg with tibial spur 0.4–0.5 as long as basitarsus, which is 9.0–14.7

times as long as wide; basitarsus of ♂ normal, not flattened; tarsal claw with 7–29 pectines. Hind tarsal claw normal, with 5–24 pectines. Bristles on tibiae weak and sparse, their sockets separated by more than the length of the bristles.

Forewing 6.3–11.4 mm long, 2.5–3.1 times as long as wide; 3r-m usually present, absent in some specimens; cu-a varying from opposite Rs+M to distad Rs+M by about 1/3 of cu-a length, weakly inclivous to weakly reclivous; 2M+Cu with hairs allover, or on anterior and posterior 1/3. Hindwing with 4–8 distal hamuli; nervellar index 0.2–0.5.

Metasoma with 1st tergum 1.5–1.7 times as long as the 2nd; ovipositor about twice as long as apical depth of metasoma; male subgenital plate with posterior margin weakly to strongly convex; paramere with or without marginal spine, with or without sclerotized papillate area on median membrane around pad; digitus with ventro-apical corner pointed; brace narrow, or broad basally and strongly tapered toward apex; pad membranous, or sclerotized and forming a spine in one species; aedeagus with basal apodeme weakly curved, or almost straight posteriorly and anterior portion curved.

Ovarian egg with stalk on ventral margin, the stalk situated at varying from caudal end to caudal 1/3.

Remarks. This subgenus is characterized by the following combination of characters: Interocellar area not black; occipital carina weak; mesosoma polished; lateral carina of mesoscutellum not extending to its entire length; 3r-m usually present; 2M+Cu posteriorly with hairs; ovipositor 1.5–2.0 times as long as apical depth of metasoma. It should be noted, however, that all these characters are not unique to *Paropheltes* and the characters of male genitalia are heterogeneous in it.

TOWNES (1938) divided this subgenus into five species groups, *flavolineata-*, *barberi-*, *tarsata-*, *radiata-* and *ciliata-*groups. Later, KAUR & JONATHAN (1979) recognized additional two species groups, *thomsoni-* and *guptai-*groups. Consequently, seven species groups are recognized in *Paropheltes.*

Subgenus *Longiterebates* was established by KAUR & JONATHAN (1976). Judging from the descriptions of KAUR & JONATHAN (1979), the differences between *Longiterebates* and *Paropheltes* are only the strength of occipital carina, *i.e.* the occipital carina is absent or vestigial in *Longiterebates* and weak in *Paropheltes.* The characters of male genitalia are heterogeneous also in *Longiterebates.* Moreover, the paramere of *N.* (*L.*) *himalensis* KAUR *et* JONATHAN, 1976 which is the type species of *Longiterebates* is closely resembling to that of the *barberi-*group of *Paropheltes.*

As the definition of *Longiterebates* is not clear, the subgenus is treated here to be confined to India (KAUR & JONATHAN, 1979), and the species in which the characters except the strength of occipital carina agree with *Paropheltes* are treated as a member of *Paropheltes* in this study.

Recorded hosts of this subgenus are belonging to the Geometridae, Drepanidae and Notodontidae (Lepidoptera).

Key to Japanese species of *Paropheltes*

(Female of *N.* (*P.*) *strigosa* n. sp. is unknown)

1. Mesepisternum entirely brown to blackish brown or with brown to blackish brown markings 2

— Mesepisternum reddish yellow, without dark brown markings as above .. 3

2. Upper face yellow with brown triangular marking (Fig. 1G); metasoma reddish brown to blackish brown; dorsal half of hind leg brown; lateral carina of mesoscutellum extending anterior 0.3–0.5 of it (Fig. 2C); paramere (Fig. 5H) with brace narrow, with sclerotized papillate area on median membrane .... *N.* (*P.*) *brunea* n. sp.

— Upper face reddish yellow to reddish brown (Fig. 1H), without triangular marking; metasoma reddish yellow to yellowish red; hind leg entirely reddish yellow; lateral carina of mesoscutellum extending anterior 0.6–0.7 of it (Fig. 2D); paramere (Fig. 5H) with brace broad basally and strongly tapering toward apex, without sclerotized papillae .... *N.* (*P.*) *caucasica* (KOKUJEV)

3. Mesoscutum with median lobe darker than lateral lobe; paramere (Fig. 5B) without marginal spine; pad sclerotized .... *N.* (*P.*) *tarsata* (BRISCHKE)

— Mesoscutum with median lobe same color as lateral lobe; paramere with marginal spine; pad membranous 4

4. Occipital carina absent or vestigial, and propodeal crest strong (Fig. 2B); paramere (Fig. 5D) with sclerotized papillate area on median membrane .... *N.* (*P.*) *fulginosa* n. sp.

— Occipital carina weak to strong; propodeal crest present or absent; paramere without sclerotized papillae 5

5. Lateral carina of mesoscutellum fading out at or before its middle (Fig. 8B); mesoscutum and mesoscutellum brownish yellow; dorsal surface of propodeum reddish yellow; metasoma yellowish red .... *N.* (*P.*) *terebrator* (ULBRICHT)

— Lateral carina of mesoscutellum extending to anterior 0.7–0.8 of it (Fig. 8A & 8C); mesoscutum, mesoscutellum and dorsal surface of propodeum yellowish red to brown; metasoma brownish red to brown 6

6. Occipital carina strong; propodeal crest present (Fig. 8C); base of pad narrow (Fig. 11G) .... *N.* (*P.*) *savchenkoi* TOLKANITZ

— Occipital carina weak; propodeal crest absent (Fig. 8A); base of pad broad (Fig. 11B) .... *N.* (*P.*) *strigosa* n. sp.

Netelia* (*Paropheltes*) *tarsata (Brischke, 1880)

(Figs. 1A, 1E, 2A, 3A–B, 4A, 5A–B & 6A–B)

Paniscus tarsatus Brischke, 1880, Schr. naturf. Ges. Danzig (n. f.), **4**: 138.
Parabates tarsatus: Dalla Torre, 1901, Cat. Hym., **3**: 76.
Parabatus tarsatus: Uchida, 1928, J. Fac. Agric. Hokkaido Imp. Univ., **21**: 196
Paniscus (*Parabates*) *tarsatus*: Uchida, 1934, Ins. matsum., **8**: 113; Uchida, 1935, Ins. matsum., **9**: 122.
Netelia (*Paropheltes*) *tarsata*: Townes, 1938, Lloydia, **1**: 178; Townes, Momoi & Townes, 1965, Mem. Am. ent. Inst., **5**: 84; Tolkanitz, 1974, Zool. Zh., **53**: 386; Delrio, 1975, Studi Sass., (3), **23**: 32; Tolkanitz, 1981, Fauna Ukraini, **11**(1): 77; Tolkanitz, 1981, [Hym. Far East]: 32.

♀♂. Head (Figs. 1A & 1E) 1.6–1.8 times as wide as long; occipital carina present dorso-laterally, weak or vestigial; lateral ocellus almost touching eye or OOL : POL = 1 : 3–2 : 3; lower face 1.3–1.5 times as wide as long; clypeus 1.8–2.3 times as wide as long; gena 0.3–0.5 as long as width of mandibular base; flagellum 39–44-segmented; 1st flagellar segment 1.2–1.4 times as long as the 2nd, which is 2.9–3.3 times as long as wide.

Mesosoma (Fig. 2A): Mesoscutum 1.2–1.4 times as long as wide, with notaulus fading out at about middle; mesoscutellum 1.3–1.7 times as long as distance between lateral carinae at its base, with lateral carina extending to anterior 0.3 and weakly convergent posteriorly, with weak longitudinal striae on posterior 0.3; propodeum trans-striate on median 1/3–1/2 and smooth on posterior 1/4–1/3, without lateral crest.

Legs: Fore basitarsus 11.3–12.8 times as long as wide; fore tarsal claw with 8–10 (♀) and 10–17 (♂) pectines; hind tarsal claw with 8–11 pectines.

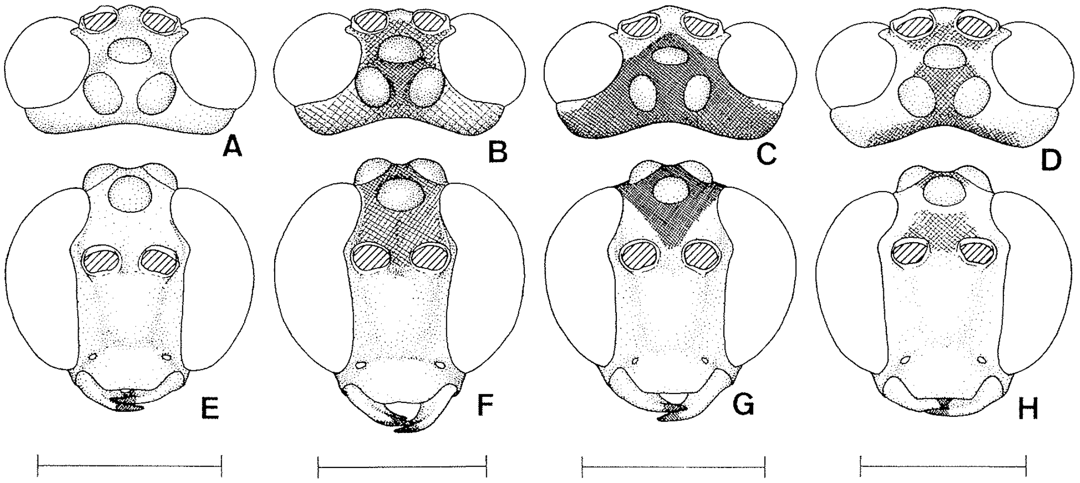

Fig. 1. Heads of *Netelia* (*Paropheltes*) spp., males. A–D, Dorsal views; E–H, frontal views; A & E, *N.* (*P.*) *tarsata* (Brischke); B & F, *N.* (*P.*) *fulginosa* n. sp.; C & G, *N.* (*P.*) *brunea* n. sp.; D & H, *N.* (*P.*) *caucasica* (Kokujev). Scales: 1.0 mm.

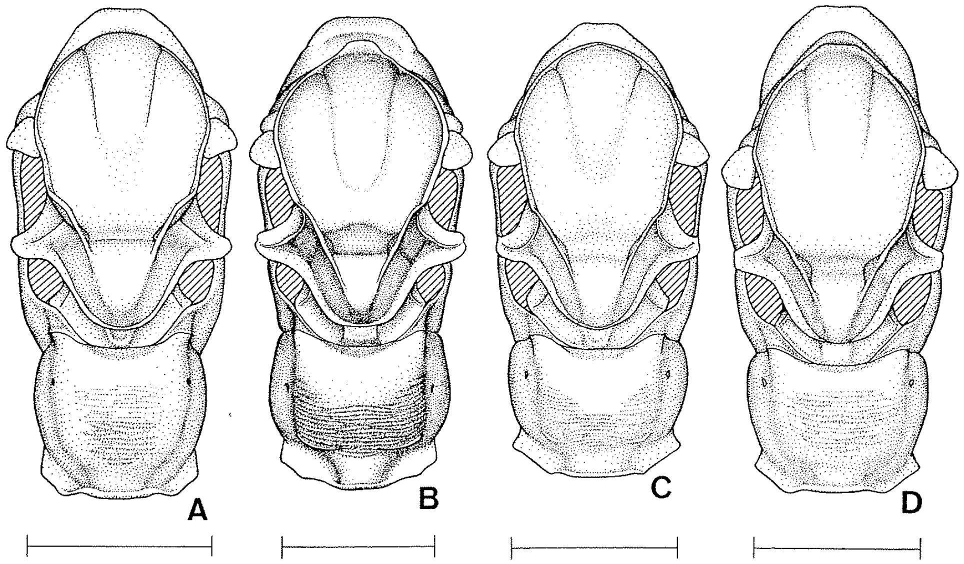

Fig. 2. Dorsal views of mesosomata of *Netelia* (*Paropheltes*) spp., males. A, *N.* (*P.*) *tarsata* (BRISCHKE); B, *N.* (*P.*) *fulginosa* n. sp.; C, *N.* (*P.*) *brunea* n. sp.; D, *N.* (*P.*) *caucasica* (KOKUJEV). Scales: 1.0 mm.

Forewing (Fig. 3A) 2.6–3.0 times as long as wide; cu-a varying from opposite to distad Rs+M by 1/5 of cu-a length, weakly inclivous to weakly reclivous; 1M+Cu bare except distal 1/4–1/3 with sparse hairs. Hindwing (Fig. 3B) with 5–7 distal hamuli; nervellar index 0.3–0.4.

Metasoma: First tergum 1.5–1.7 times as long as the 2nd; male subgenital plate (Fig. 4A) with posterior margin weakly convex; paramere (Fig. 5B) parallel-sided with apex rounded, without spine, median membrane with sclerotized papillate area around pad; brace narrow, long and weakly curved; base of pad narrow, situated near dorsal margin; pad sclerotized, elongate conical and forming a spine, produced anteriorly; aedeagus (Fig. 5A) with basal apodeme weakly curved.

Color: Head yellow; dorsal half of occiput, vertex, posterior 1/3 of temple and upper face except inner orbit slightly reddish yellow; interocellar area and antenna reddish yellow; mandible brownish yellow except teeth brown. Mesosoma yellow; dorsal 1/2–1/3 of pronotum reddish yellow; mesoscutum yellowish red except anterior and lateral margins of lateral lobe, with brownish red to brown stripe on median lobe; mesoscutellum reddish yellow; mesepisternum reddish yellow except antero- and postero-dorsal corners and anterior and postero-ventral margins; metanotum and propodeum reddish yellow; metapleuron reddish yellow except postero-ventral 1/3. Legs reddish yellow; fore and middle coxae yellow; hind tarsus whitish yellow. Wings hyaline; stigma pale brownish yellow. Metasoma yellowish to reddish brown.

Ovarian egg (Fig. 6A–B) with a stalk on caudal 1/8 of ventral margin, 1.9–

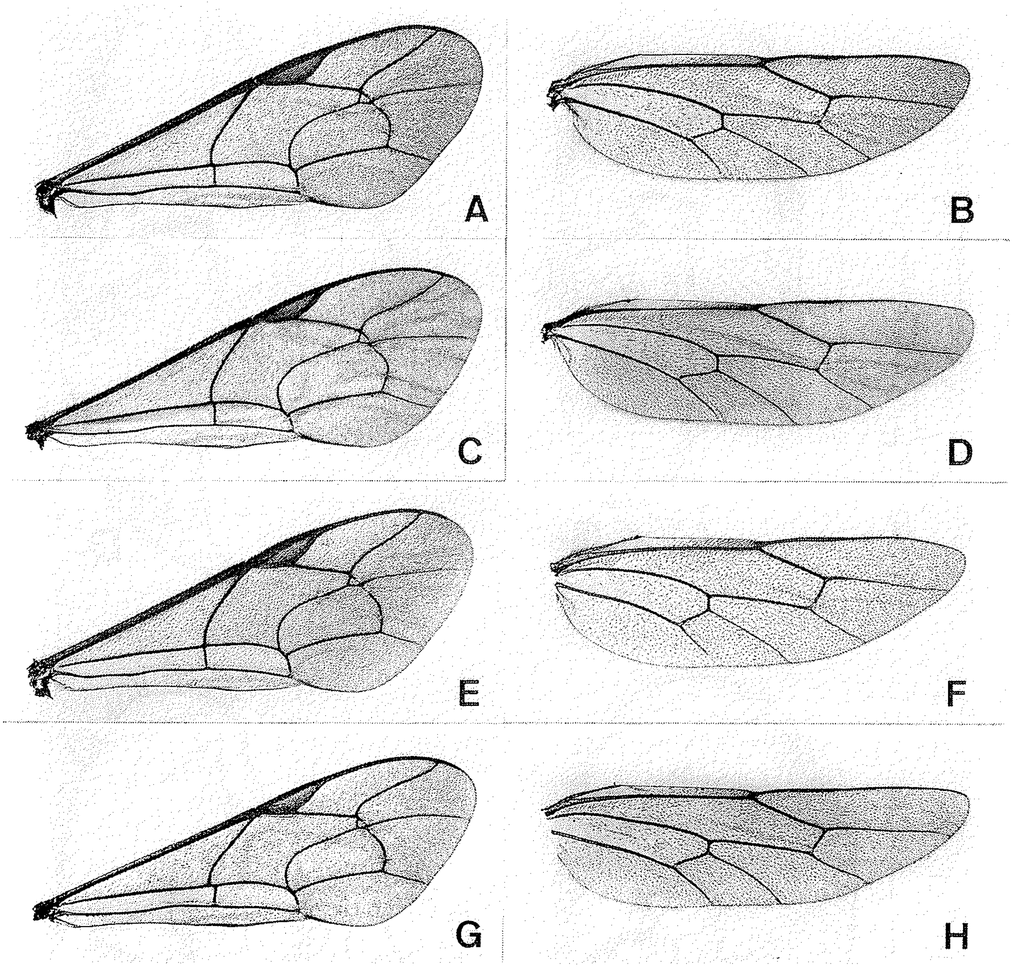

Fig. 3. Wings of *Netelia* (*Paropheltes*) spp., males. A, C, E & G, Forewings; B, D, F & H, hindwings; A & B, *N.* (*P.*) *tarsata* (BRISCHKE); C & D, *N.* (*P.*) *fulginosa* n. sp.; E & F, *N.* (*P.*) *brunea* n. sp.; G & H, *N.* (*P.*) *caucasica* (KOKUJEV).

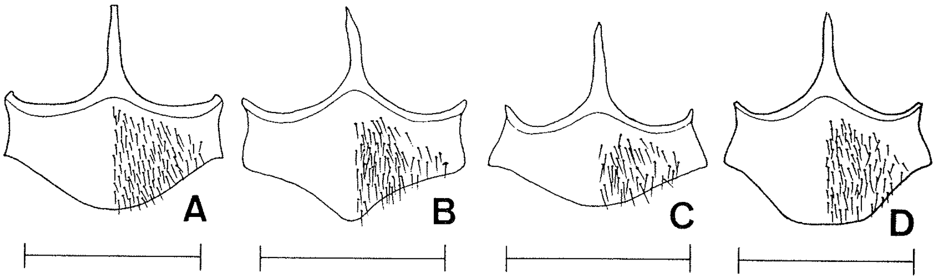

Fig. 4. Ventral views of male subgenital plates of *Netelia* (*Paropheltes*) spp. A, *N.* (*P.*) *tarsata* (BRISCHKE); B, *N.* (*P.*) *fulginosa* n. sp.; C, *N.* (*P.*) *brunea* n. sp.; D, *N.* (*P.*) *caucasica* (KOKUJEV). Scales: 0.5 mm.

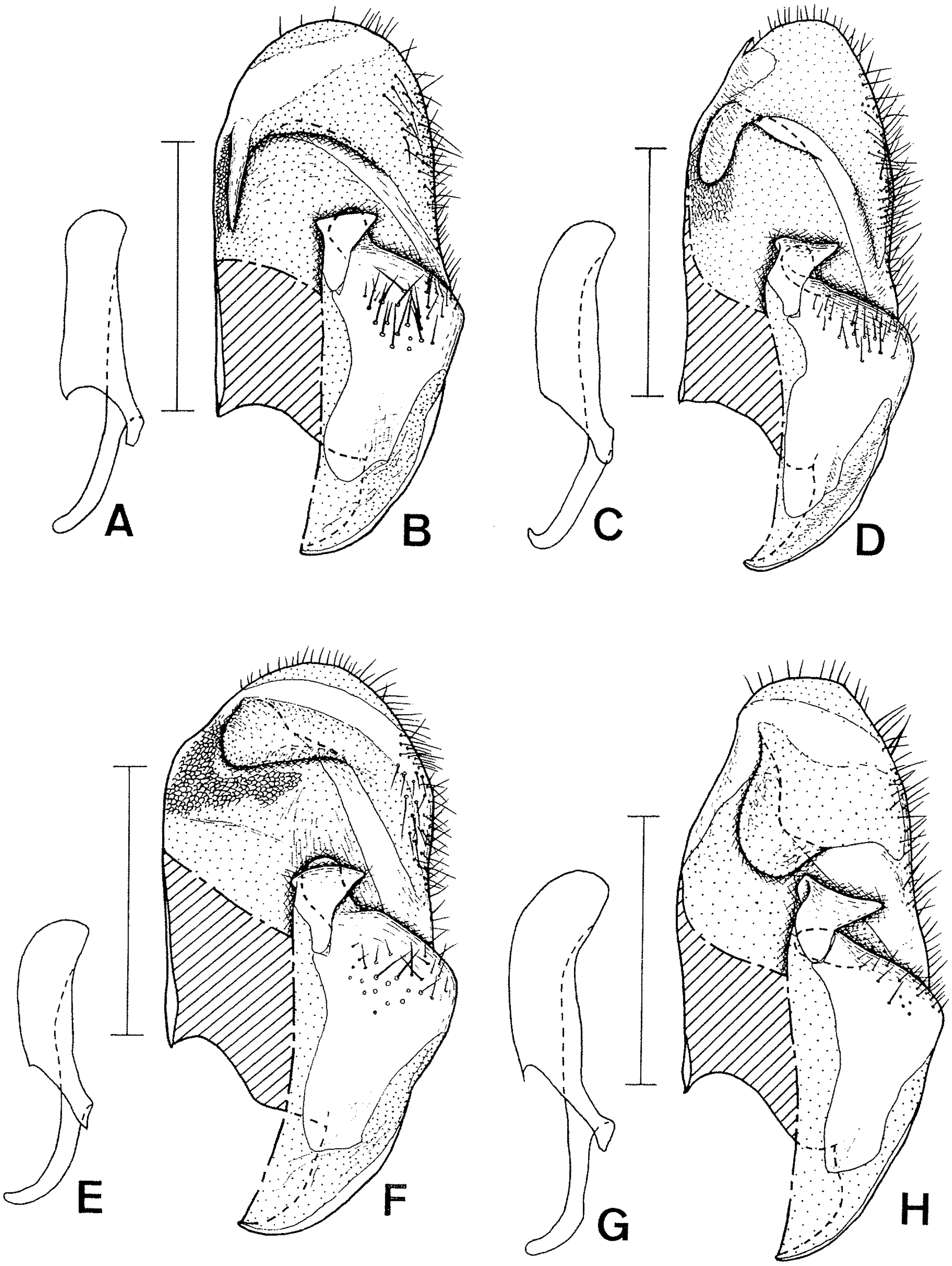

Fig. 5. Male genitalia of *Netelia* (*Paropheltes*) spp. A, C, E & G, Lateral views of aedeagi; B, D, F & H, median views of right parameres; A & B, *N.* (*P.*) *tarsata* (BRISCHKE); C & D, *N.* (*P.*) *fulginosa* n. sp.; E & F, *N.* (*P.*) *brunea* n. sp.; G & H, *N.* (*P.*) *caucasica* (KOKUJEV). Scales: 0.5 mm.

2.3 times as long as high; length 0.6 mm and height 0.3 mm; egg shell surface sculptured as in Fig. 6B.

Length of forewing: 6.5–9.6 mm.

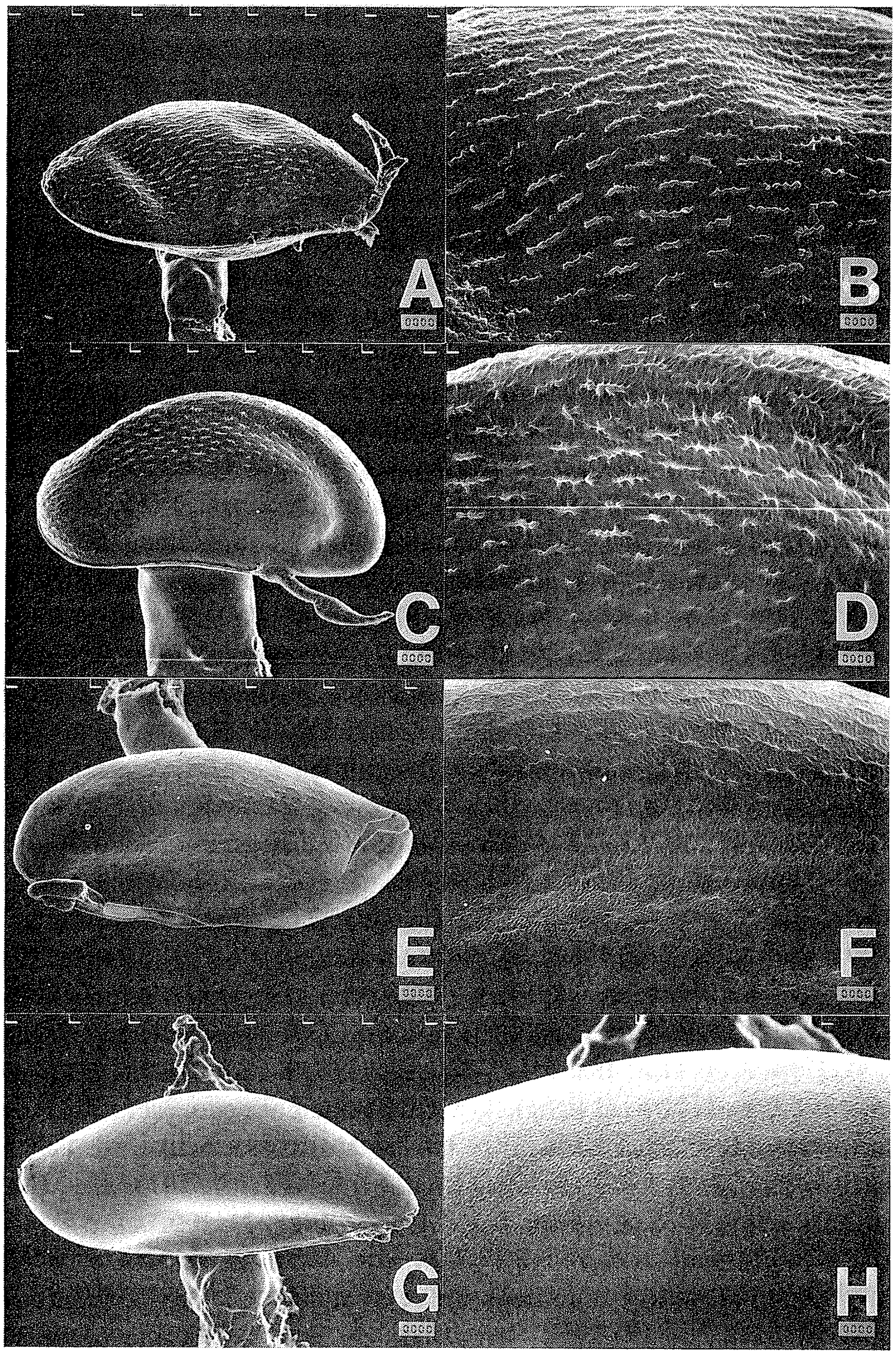

Fig. 6. Ovarian eggs of *Netelia* (*Paropheltes*) spp. A, C, E & G, Lateral views; B, D, F & H, enlargements to show surface sculpture; A & B, *N.* (*P.*) *tarsata* (BRISCHKE); C & D, *N.* (*P.*) *fulginosa* n. sp.; E & F, *N.* (*P.*) *brunea* n. sp.; G & H, *N.* (*P.*) *caucasica* (KOKUJEV).

Specimens examined. [Rebun Is.] 1♂, 8. viii. 1959 (Y. MAETA). [Hokkaido] 1♀, Sarobetsu, Souya, 10. viii. 1965 (T. KUMATA *et al.*); 1♀, Horoka, Tokachi, 2. vii. 1980 (K. MAETÔ); 1♀, Nukabira, Tokachi, 19. vii. 1967 (M. HONDA); 1♀, Ashoro, Tokachi, 22. vii. 1967 (H. SHIMA); 1♂, Shikaribetsu (600 m), Tokachi, 3. vii. 1980 (H. TAKEMOTO); 9♀, Nissho-toge, Hidaka, 31. vii–1. viii. 1986 (S. NOMURA), at light; 1♀, Sapporo, 6. ix. 1967 (K. KUSIGEMATI); 1♂, Jozankei, Sapporo, 26. v. 1967 (K. KUSIGEMATI). [Honshu] 1♀ (21. v. 1980, S. NAOMI) and 1♀ (16. vii. 1985, K. KONISHI *et al.*, at light), Mt. Hayachine, Iwate Pref.; 1♂, Mt. Chokai-san, Yamagata Pref., 3. ix. 1966 (K. KUSIGEMATI); 1♂, Senjogahara, Nikko, Tochigi Pref., 16. ix. 1986 (M. MIYAZAKI); 9♂, Mt. Yamizo-san, Ibaraki Pref., 22. viii. 1992 (K. KONISHI), at light; 1♂, Yazawa, Hinohara-mura, Tokyo, 13. vii. 1988 (H. NAGAOKA), at light; 1♂, Mt. Syoto-san, Hinohara-mura, Tokyo, 14. vii. 1988 (S. YAMADA *et al.*), at light; 1♂ (26–27. vii. 1961, J. MINAMIKAWA) and 1♂ (28. viii. 1971, M. NAGAI), Shiga-kogen, Nagano Pref.; 1♂, Iwanadome, Shimashima, Nagano Pref., 11–12. ix. 1975 (A. NAKANISHI); 1♀, Uradani Shitara, Aichi Pref., 7. vii. 1973 (B. TANAKA); 2♂, Mt. Hoko-san, Nara Pref., 30. vii. 1983 (Y. SYÔNO), at light; 1♀ (1. x. 1975, O. YATA) and 1♀ (25. vi. 1984, K. KONISHI, at light), Odaigahara, Nara Pref.; 1♀, Mt. Oto-san, Wakayama Pref., 16–19. vii. 1982 (H. MAKIHARA); 1♀, Sandankyo, Hiroshima Pref., 2. vi. 1983 (K. KONISHI). [Shikoku] 1♀, Shodo-jima Is., Kagawa Pref., 27. iv. 1966 (M. MIYAZAKI); 1♀, Mt. Kumosou-yama, Tokushima Pref., 22. vii. 1986 (K. ÔHARA *et al.*), at light; 1♀ 2♂ (24–25. vii. 1986) and 1♂ (14. viii. 1986), Mt. Takashiro-yama, Tokushima Pref., K. ÔHARA *et al.*, at light; 1♂, Ichinomori, Tokushima Pref., 23. vii. 1986 (K. ÔHARA *et al.*), at light; 1♂, Mt. Tsurugi-san, Tokushima Pref., 16. x. 1980 (T. GOTÔ); 1♂ (26. viii. 1957, M. MIYATAKE), 1♀ 1♂ (26. vii. 1971, Y. ARITA) and 3♀ 4♂ (4–5. viii. 1983, K. KONISHI, at light), Mt. Ishizuchi-san, Ehime Pref.; 1♀, Onogahara, Ehime Pref., 6. viii. 1976 (K. ÔHARA). [Kyushu] 1♀ (25. vi. 1966, A. NAKANISHI), 1♂ (21. vii. 1969, K. KANMIYA, at light) and 1♀ (6. vii. 1983, R. NODA, at light), Mt. Hiko-san, Fukuoka Pref.; 3♀ 5♂, Mt. Aso-san, Kumamoto Pref., 10. viii. 1978 (K. YAMAGISHI), light trap; 1♀, Nigo, Kumamoto Pref., 14. v. 1980 (K. ÔHARA); 1♀ 1♂ (8. vii. 1978, K. MAETÔ), 2♀ 1♂ (12. v. 1983, N. KÔDA *et al.*), 1♂ (9. vii. 1983, N. KÔDA), 6♀ 1♂ (19. vii. 1983, N. KÔDA *et al.*) and 3♂ (26. viii. 1983, N. KÔDA *et al.*), Mt. Shiratori-yama (1300 m), Kumamoto Pref., at light; 1♂, Mt. Ichifusa-yama, Kumamoto Pref., 5. viii. 1984 (K. KONISHI); 1♀, Mt. Takakuma-yama, Kagoshima Pref., 17. vi. 1978 (K. HASHIMOTO).

Distribution. Japan (Rebun Is., Hokkaido, Honshu, Shikoku, Kyushu), Holarctic Region.

Hosts. Two species of the genus *Drepana* (Drepanidae), eleven species of the genus *Eupithecia* (Geometridae) and a species of the genus *Anticollix*

(Geometridae) were recorded in Europe (BRISCHKE, 1880; MORLEY & RAIT-SMITH, 1933; HAMMOND & SMITH, 1960; DERLIO, 1975). UCHIDA (1928) recorded *Eupithecia subfuscata* (HAWORTH) and *E. virgaureata* DOUBLEDAY in Japan.

Remarks. This species is an only member of the *tarsata*-group and distinguished from any other consubgeneric species by the sclerotized pad. In Japanese species of the subgenus, this species can be easily distinguished by the coloration of mesoscutum.

CHA & LEE (1988) recorded a species as *N.* (*P.*) *tarsata* from Korea. But, judging from their figure of male genitalia, the species has the membranous pad and is thought to be a member of the subgenus *Netelia.*

Netelia (*Paropheltes*) *fulginosa* n. sp.

(Figs. 1B, 1F, 2B, 3C–D, 4B, 5C–D & 6C–D)

♀♂. Head (Figs. 1B & 1F) 1.6–1.7 times as wide as long; occipital carina absent or vestige of it present dorsally; lateral ocellus almost touching eye or OOL : POL = 1 : 7–1 : 8; lower face 1.3–1.4 times as wide as long; clypeus 1.8–2.0 times as wide as long: gena 0.4–0.5 as long as width of mandibular base; flagellum 38–44-segmented; 1st flagellar segment 1.3–1.4 times as long as the 2nd, which is 3.6–3.9 (♀) and 2.9–3.0 (♂) times as long as wide.

Mesosoma (Fig. 2B): Mesoscutum 1.2 times as long as wide, with notaulus fading out at about posterior 1/5; mesoscutellum 1.6–1.8 times as long as distance between lateral carinae at its base, with lateral carina extending to anterior 0.7 and strongly convergent posteriorly, longitudinally striate on posterior 1/3; propodeum trans-striate on anterior 2/3, with lateral crest strong and contiguous to pleural carina.

Legs: Fore basitarsus 10.3–12.6 (♀) and 12.1–14.7 (♂) times as long as wide; fore tarsal claw with 8–11 (♀) and 13–16 (♂) pectines; hind tarsal claw with 8–11 (♀) and 13–14 (♂) pectines.

Forewing (Fig. 3C) 2.7 times as long as wide; cu-a slightly distad Rs+M, vertical; 1M+Cu almost bare except frontal and distal margins with rows of hairs. Hindwing (Fig. 3D) with 4–6 distal hamuli; nervellar index 0.3–0.4.

Metasoma: First tergum 1.5–1.7 times as long as the 2nd; male subgenital plate (Fig. 4B) with posterior margin strongly convex; paramere (Fig. 5D) parallel-sided with apical margin rounded, with a spine on dorso-apical margin, with sclerotized finely papillate area on medial membrane around pad; brace narrow, long and with apical 1/3 strongly curved; base of pad narrow, situated near dorsal margin; pad membranous, long and produced anteriorly; aedeagus (Fig. 5C) with basal apodeme almost straight posteriorly and anterior portion of it strongly curved, with penis valve weakly tapering toward rounded apex.

Color: Head yellow; dorsal half of occiput, vertex and interocellar area reddish to brownish yellow; upper face except inner orbit reddish yellow; antenna reddish yellow; apical half of mandible brown except teeth black. Mesosoma reddish yellow; mesoscutum except anterior margin of lateral lobe and lateral margin, mesoscutellum, central area of metanotum and dorsal surface of propodeum reddish brown. Legs yellow to reddish yellow; dorsal halves of hind coxa and femur reddish brown; hind tarsus whitish yellow. Wings hyaline; stigma brownish yellow. Metasoma reddish brown.

Ovarian egg (Figs. 6C–D) with a stalk on caudal 1/3 of ventral margin, 1.9–2.0 times as long as high; length 0.6–0.7 mm; height 0.3–0.4 mm; egg shell surface sculptured as in Fig. 6D, the sculpture weaker ventrally.

Length of forewing: 8.0–9.6 mm.

Holotype: ♂, Yazawa, Hinohara-mura, Tokyo, 14. vii. 1988 (H. NAGAOKA), at light.

Paratypes: [Honshu] 1♀, Hinoemata-mura, Fukushima Pref., 17. vii. 1975 (O. YATA); 1♀, Iwanadome, Shimashima, Nagano Pref., 11–12. ix. 1975 (A. NAKANISHI); 1♂, Masutomi (1100–1500 m), Kanayama, Yamanashi Pref., 8. viii. 1975 (J. EMOTO); 1♂, Mikuni-toge, Kanagawa Pref., 7. vi. 1970 (H. TAKIZAWA); 1♀, Mt. Daisen, Tottri Pref., 8. viii. 1978 (T. GOTÔ). [Shikoku] 1♀, Mt. Tsurugi-san (900 m), Tokushima Pref., 17. x. 1980 (K. MAETÔ). [Kyushu] 1♂, Mt. Aso-san, Kumamoto Pref., 20–29. vi. 1978 (K. YAMAGISHI), at light; 1♀, Mt. Shiratori-yama, Izumi-mura, Kumamoto Pref., 9–11. vii. 1978 (K. MAETÔ).

Distribution. Japan (Honshu, Shikoku, Kyushu).

Remarks. The occipital carina of this species is absent or vestigial, but this is treated here as a member of *Paropheltes* as mentioned in the remarks of the subgenus.

This species resembles *Netelia* (*Longiterebates*) *grandis* KAUR *et* JONATHAN, 1979 in the shape of paramere, the shape of subgenital plate and having the strong propodeal crest, but differs from it in having the sclerotized papillate area on median membrane of paramere.

Netelia (*Paropheltes*) *brunea* n. sp.

(Figs. 1C, 1G, 2C, 3E–F, 4C, 5E–F & 6E–F)

♀♂. Head (Figs. 1C & 1G) 1.6–1.8 times as wide as long; occipital carina present dorso-laterally, weak; OOL : POL = 2 : 3; lower face 1.5–1.6 times as wide as long; clypeus 2.1–2.4 times as wide as long; gena 0.3–0.5 as long as width of mandibular base; flagellum 40–42-segmented; 1st flagellar segment 1.3–1.4 times as long as the 2nd, which is 3.1–3.4 (♀) and 2.5–2.7 (♂) times as long as wide.

Mesosoma (Fig. 2C): Mesoscutum 1.2–1.3 times as long as wide, with notaulus fading out at middle to posterior 1/4; mesoscutellum 1.2–1.5 times as long as distance between lateral carinae at its base, with lateral carina extending to anterior 0.3–0.5 and weakly convergent posteriorly; propodeum weakly puncto-striate on anterior 2/5, trans-striate on median 2/5 and smooth on posterior 1/5, with lateral crest weak or vestigial.

Legs: Fore basitarsus 11.0–12.0 times as long as wide; fore tarsal claw with 7–12 pectines; hind tarsal claw with 5–9 pectines.

Forewing (Fig. 3E) 2.6–2.7 times as long as wide; cu-a opposite or slightly distad Rs+M, vertical; 1M+Cu bare on basal 3/5 and with sparse hairs on distal 2/5. Hindwing (Fig. 3F) with 4–6 distal hamuli; nervellar index 0.3–0.5.

Metasoma: First tergum 1.5–1.7 times as long as the 2nd; male subgenital plate (Fig. 4C) with posterior margin weakly convex; paramere (Fig. 5F) parallel-sided with rounded apex, without spine, median membrane with sclerotized papillate area around pad; brace narrow, long and almost straight; base of pad moderately broad, situated near dorsal margin; pad membranous, produced dorso-anteriorly; aedeagus (Fig. 5E) with apodeme weakly curved.

Color: Head yellow; dorsal 1/3–1/2 of occiput, dorsal 1/4–1/3 of temple, vertex, interocellar area and triangular marking on upper face brown; antenna reddish yellow, with basal half brownish dorsally; mandibular teeth black. Mesosoma brown; pronotum with anterior margin and ventral 1/3–3/4 yellow; propleuron yellow to brownish yellow; mesoscutum entirely blackish brown, or anterior margin of lateral lobe and lateral margin yellow in paler specimens; postero-lateral 1/4–2/3 of mesoscutellum yellow; mesepicnemium entirely yellow or yellow with lateral portion light brown; mesepisternum brown with anterior and dorsal margins and postero-ventral portion yellow, or reddish yellow with brown markings on dorsal and ventro-lateral portions; mesepimeron reddish yellow; metanotum yellow except central area; postero-ventral 1/3–2/3 of metapleuron yellow; lateral portion of propodeum yellow in paler specimens. Legs yellow to reddish yellow; dorsal half of hind leg brown except tarsus whitish yellow. Wings hyaline; stigma pale brownish yellow. Metasoma reddish brown to blackish brown except basal portion of 1st tergum brownish yellow; paramere brownish yellow.

Ovarian egg (Figs. 6E–F) with a stalk on caudal 1/8 of ventral margin, 2.0–2.3 times as long as high; length 0.5 mm and height 0.2–0.3 mm; egg shell surface sculptured as in Fig. 6F, the sculpture weaker ventrally.

Length of forewing: 6.3–7.7 mm.

Holotype: ♂, Nukabira, Kamishihoro-machi, Tokachi, Hokkaido, 22. vi. 1980 (K. Maetô).

Paratypes: [Hokkaido] 2♀, Kyushu Univ. Exp. Forest, Ashoro-machi, Tokachi, 24–26. vi. 1980 (H. Takemoto); 1♀ (20. vi. 1965) and 1♀1♂ (26. v. 1967), Jozankei, Sapporo, (K. Kusigemati); 1♀1♂, Shikotsuko, Ishikari, 30.

vi. 1966 (K. KUSIGEMATI). [Honshu] 1♀, Yokouchi-Yaegiku, Aomori City, Aomori Pref., 15–29. viii. 1992 (T. ICHITA), sticky trap; 1♂, Mt. Takao-san, Tokyo, 12. v. 1963 (J. MINAMIKAWA); 1♀, Shimashima, Nagano Pref., 25. viii. 1978 (K. MAETÔ); 1♂, Daibosatsu-toge (1400–1800 m), Yamanashi Pref., 23. v. 1969 (K. KANMIYA); 1♀ (26. v. 1975) and 1♀ (12. viii. 1975, Malaise trap), Masutomi, Kanaya, Yamanashi Pref., (J. EMOTO); 1♀, Nachi, Wakayama Pref., 4. v. 1965 (T. NAITO).

Distribution. Japan (Hokkaido, Honshu).

Remarks. This species resembles *N.* (*Longiterebates*) *turgida* KAUR *et* JONATHAN, 1979 in the shape of paramere, the possession of the sclerotized papillate area (=a patch of several rows of close set teeth) on median membrane of paramere, the narrow brace and the shape of digitus, but differs from it in having the occipital carina.

This and the preceding species can not be placed in any species group of *Parophelte*s.

Netelia (*Paropheltes*) *caucasica* (KOKUJEV, 1899)

(Figs. 1D, 1H, 2D, 3G–H, 4D, 5G–H & 6G–H)

Paniscus caucasicus KOKUJEV, 1899, Horae Soc. ent. Ross., **34**: 134, 140; SZEPLIGETI, 1905, Ann. hist.-nat. Mus. Hung., **3**: 539; GOLOVISNIN, 1928, Isv. otdjel. prikl. Ent., **3**: 227.

Paniscus nigrithorax HABELMEHL, 1922, Dtsch. ent. Ztschr., **5/6**: 350.

Paniscus nigrus UCHIDA, 1928, J. Fac. Agric. Hokkaido Univ., **21**: 188.

Paniscus (*Paniscus*) *nigrus*: UCHIDA, 1934, Ins. matsum., **8**: 109.

Paniscus (*Paropheltes*) *caucasicus*: UCHIDA, 1942, Ins. matsum., **16**: 132.

Paniscus caucasicus var. *nigrocincta* OZOLS, 1959, Fauna Latwiiskoj SSR, Riga, **2**: 126, 145.

Netelia caucasicus: OZOLS, 1959, Fauna Latwiiskoj SSR, Riga, **2**: 126.

Netelia (*Paropheltes*) *caucasica*: TOWNES, MOMOI & TOWNES, 1965, Mem. Am. ent. Inst., **5**: 83; TOLKANITZ, 1974, Zool. Zh., **53**: 386; DELRIO, 1975, Studi Sass., (3), **23**: 21; TOLKANITZ, 1981, Fauna Ukraini, **11**(1): 81; TOLKANITZ, 1981, [Hym. Far East]: 32.

♀♂. Head (Figs. 1D & 1H) 1.6–1.7 times as wide as long; occipital carina present dorso-laterally, weak; OOL : POL = 1 : 2–5 : 6; upper face weakly trans-striate on lower half; lower face 1.4–1.7 times as wide as long; clypeus 1.9–2.1 times as wide as long; gena 0.4–0.5 as long as width of mandibular base; flagellum 48–51-segmented; 1st flagellar segment 1.4–1.5 times as long as the 2nd, which is 3.0–3.1 (♀) and 2.5–2.8 (♂) times as long as wide.

Mesosoma (Fig. 2D): Mesoscutum 1.3–1.4 times as long as wide, with notaulus fading out at middle to anterior 3/5; mesoscutellum 1.5–1.7 times as long as distance between lateral carinae at its base, with lateral carina extending to anterior 0.6–0.7 and strongly convergent posteriorly, longitudinally striate on lateral portion of posterior 0.3; propodeum trans-striate on 3/4–4/5 and smooth on posterior 1/5–1/4, with lateral crest varying from vestigial to distinct.

Legs: Fore basitarsus 9.0–10.3 times as long as wide; fore tarsal claw with 11–18 pectines; hind tarsal claw with 11–15 pectines.

Forewing (Fig. 3G) 2.8–3.1 times as long as wide; cu-a distad Rs+M by 1/3 of cu-a length and weakly reclivous; 1M+Cu bare except frontal margin and postero-distal portion with sparse hairs. Hindwing (Fig. 3H) with 5–6 distal hamuli; nervellar index 0.2–0.3.

Metasoma: First tergum 1.5–1.7 times as long as the 2nd; male subgenital plate (Fig. 4D) with posterior margin strongly convex; paramere (Fig. 5H) with dorsal and ventral margins weakly tapering toward rounded apical margin, without marginal spine, median membrane without papillae; brace broad basally and strongly tapering toward apex, subtriangular in median view; base of pad broad, situated near dorsal margin; pad membranous and produced dorso-anteriorly; aedeagus (Fig. 5G) with basal apodeme almost straight posteriorly and anterior 1/3 of it weakly curved.

Color: Head yellow; occiput yellowish brown to black; vertex, posterior 1/3 of temple and interocellar area reddish yellow to black; upper face reddish yellow to reddish brown except inner orbit; lower face except inner orbit and clypeus reddish yellow in darker specimens; antenna reddish yellow except apical 1/3 yellowish brown; mandible reddish yellow except teeth reddish brown to brown. Mesosoma varying in pigmentation; in the most weakly pigmented specimen, mesosoma reddish yellow with three brown stripes on mesoscutum and two yellowish brown stripes on mesepisternum; in the most strongly pigmented specimen, mesosoma black except dorsal part of anterior margin and postero-dorsal and -ventral corners of pronotum, antero-dorsal and postero-ventral margins of propleuron, lateral part of mesoscutellum, mesoaxilla, anterior and dorsal margins of mesepisternum, mesepimeron, metanotum and posterior margins of propodeum and metapleuron reddish yellow. Legs reddish yellow; hind tarsus whitish yellow except basal 1/2–1/3 of basitarsus. Wings hyaline; stigma brownish yellow. Metasoma reddish yellow to yellowish red.

Ovarian egg (Figs. 6G–H) with a stalk on ventral margin near caudal end, 2.0–2.3 times as long as high; length 0.7–0.8 mm and height 0.3–0.4 mm; egg shell surface sculptured as in Fig. 6H.

Length of forewing: 7.4–8.8 mm.

Specimens examined. [Hokkaido] 1♀, Mt. Rausu-dake, Abashiri, 3. viii. 1967 (A. NAKANISHI); 1♂, Shibetsu, Nemuro, 25–28. viii. 1971 (K. YAMAGISHI); 1♀, Shibecha, Kushiro, 1. viii. 1967 (M. HONDA); 1♀, Touro-ko, Kushiro, 26. viii. 1979 (K. ÔHARA); 1♂, Akkeshi, Kushiro, 10. vi. 1977 (K. YAMAGISHI); 1♂ (28. vii. 1991, Y. KARASAWA), 1♂ (29. vii. 1991, M. UENISHI), 1♀ (30. vii. 1991, N. KUHARA) and 1♀ (1. viii. 1991, Y. KARASAWA), Kushiro-shitsugen, Kushiro, at light; 1♀, Kamishihoro, Tokachi, 26. vi. 1986 (T. YASUNAGA); 1♂, Pirikapetan (Foot of Mt. Satsunai), Tokachi, 27–28.

vii. 1967 (A. NAKANISHI); 1♀ (holotype of *P. nigrus*), Maruyama (not Jozankei according to the label), Sapporo, 6. vi. 1910 (S. MATSUMURA). [Honshu] 1♂, Sasagamine, Niigata Pref., 26. vii. 1977 (K. BABA).

Distribution. Japan (Hokkaido, Honshu), China, Russia, Europe.

Remarks. This species resembles North African *N.* (*P.*) *pharaonum* (SCHMIEDECKNECHT, 1910) and Indian *N.* (*P.*) *guptai* KAUR *et* JONATHAN, 1979 in the absence of a marginal spine of paramere and the basally broad brace. Though the definition of the *guptai*-group is not clear, this species may belong to the species group.

Netelia (*Paropheltes*) *strigosa* n. sp.

(Figs. 7A, 7D, 8A, 9A–B, 10A & 11A–C)

♂. Head (Figs. 7A & 7D) 1.6 times as wide as long; occipital carina present dorso-laterally, weak; OOL : POL = 1 : 3–1 : 5; lower face 1.3–1.4 times as wide as long; clypeus 2.3–2.7 times as wide as long; gena 0.3–0.4 as long as width of mandibular base; flagellum 47–49-segmented; 1st flagellar segment 1.2–1.3 times as long as the 2nd, which is 3.1–3.4 times as long as wide.

Mesosoma (Fig. 8A): Mesoscutum 1.2 times as long as wide, with notaulus fading out beyond middle; mesoscutellum 1.5–1.7 times as long as distance between lateral carinae at its base, with lateral carina extending to anterior 0.7 and strongly convergent posteriorly, longitudinally striate on posterior 0.3; propodeum finely trans-striate on median portion, without lateral crest.

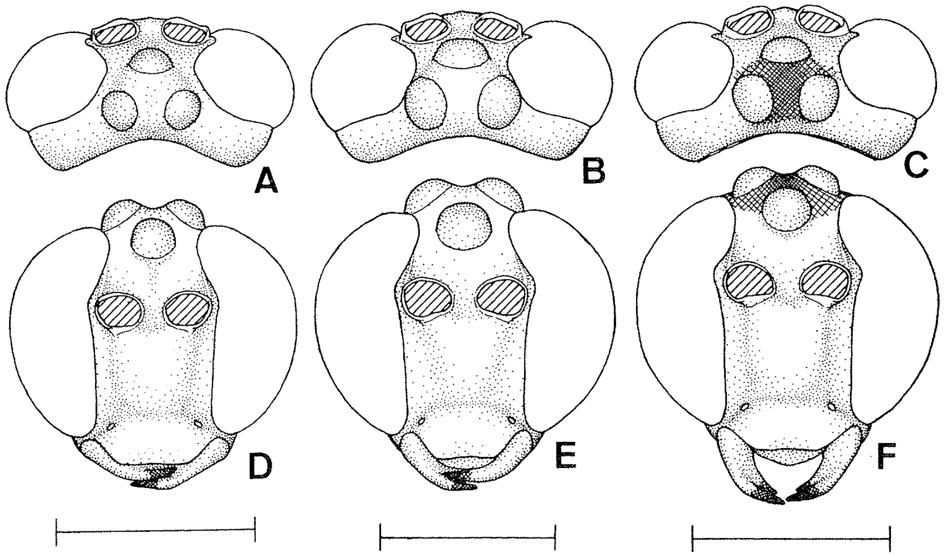

Fig. 7. Heads of *Netelia* (*Paropheltes*) spp., males. A–C, Dorsal views; D–F, frontal views; A & D, *N.* (*P.*) *strigosa* n. sp.; B & E, *N.* (*P.*) *terebrator* (ULBRICHT); C & F, *N.* (*P.*) *savchenkoi* TOLKANITZ. Scales: 1.0 mm.

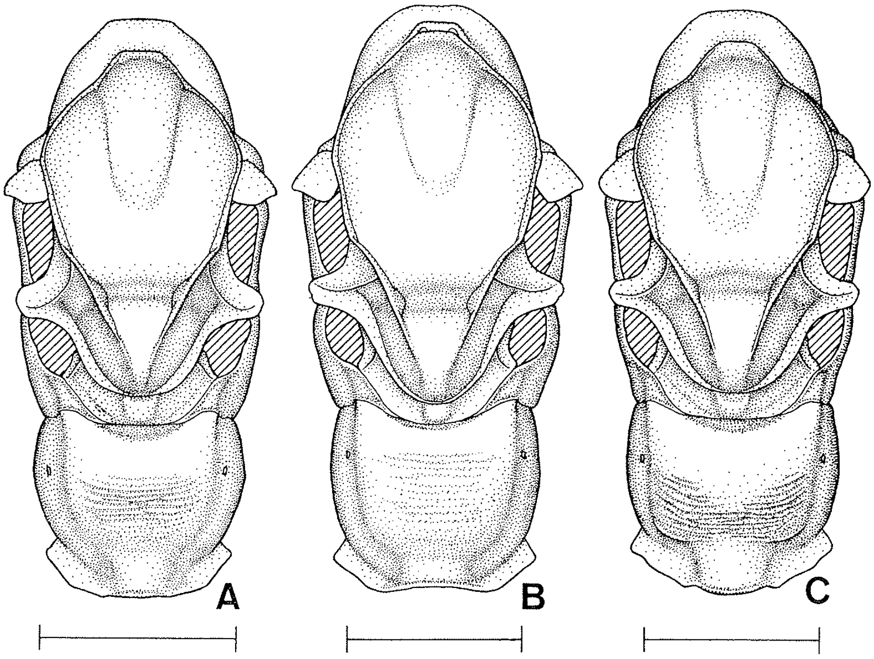

Fig. 8. Dorsal views of mesosomata of *Netelia* (*Paropheltes*) spp., males. A, *N.* (*P.*) *strigosa* n. sp.; B, *N.* (*P.*) *terebrator* (ULBRICHT); C, *N.* (*P.*) *savchenkoi* TOLKANITZ. Scales: 1.0 mm.

Legs: Fore basitarsus 13.0–14.3 times as long as wide; fore tarsal claw with 14–18 pectines; hind tarsal claw with 13–16 pectines.

Forewing (Fig. 9A) 2.6–2.7 times as long as wide; cu-a slightly distad Rs+M, vertical or slightly inclivous; 1M+Cu bare except frontal and distal 1/5 of posterior margins with rows of hairs. Hindwing (Fig. 9B) with 6 distal hamuli; nervellar index 0.2–0.4.

Metasoma: First tergum 1.6–1.7 times as long as the 2nd; male subgenital plate (Fig. 10A) with posterior margin weakly convex; paramere (Figs. 11B & 11C) with dorsal and ventral margins tapering toward rounded apical margin, with a spine on dorso-apical margin, median membrane without papillae; brace broadened basally and strongly tapering toward apex, triangular in median view; base of pad broad, situated medianly; pad membranous and produced dorso-anteriorly; aedeagus (Fig. 11A) with basal apodeme weakly curved, with penis valve weakly broadened toward rounded apex.

Color: Head yellow; vertex and interocellar area slightly brownish yellow; antenna reddish yellow; apical half of mandible brownish yellow except teeth brown. Mesosoma reddish yellow; mesoscutum, mesoscutellum and dorsal surface of propodeum yellowish red. Legs yellow; dorsal halves of hind coxa and femur reddish yellow; hind tarsus whitish yellow. Wings hyaline; stigma pale brownish yellow. Metasoma brownish red.

Length of forewing: 8.1–8.5 mm.

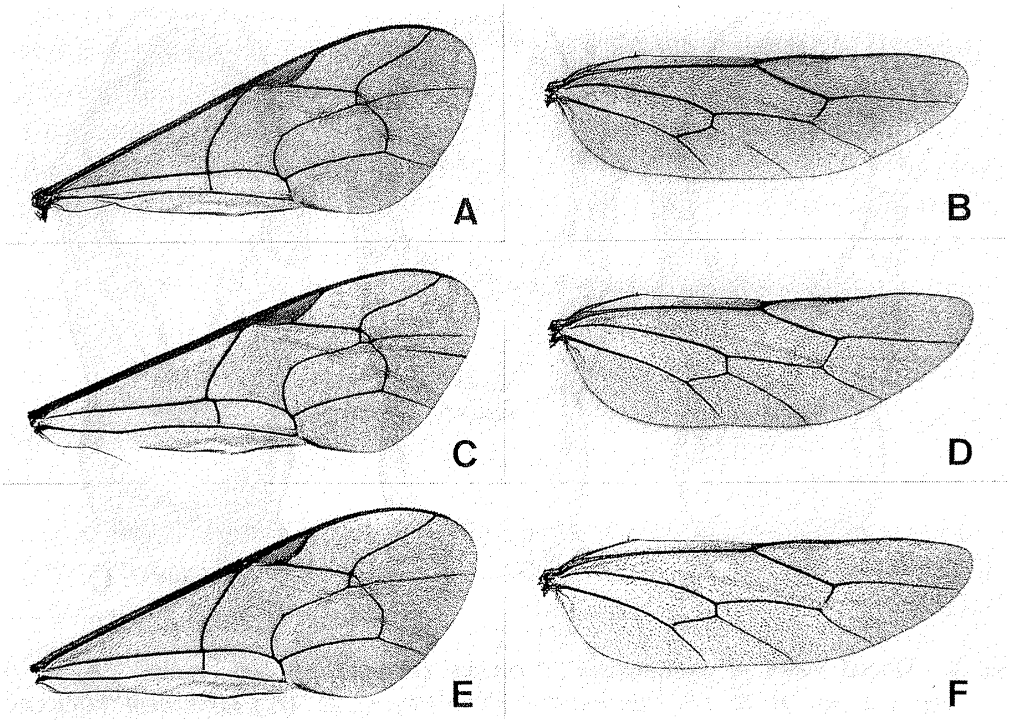

Fig. 9. Wings of *Netelia* (*Paropheltes*) spp., males. A, C & E, Forewings; B, D & F, hindwings; A & B, *N.* (*P.*) *strigosa* n. sp.; C & D, *N.* (*P.*) *terebrator* (ULBRICHT); E & F, *N.* (*P.*) *savchenkoi* TOLKANITZ.

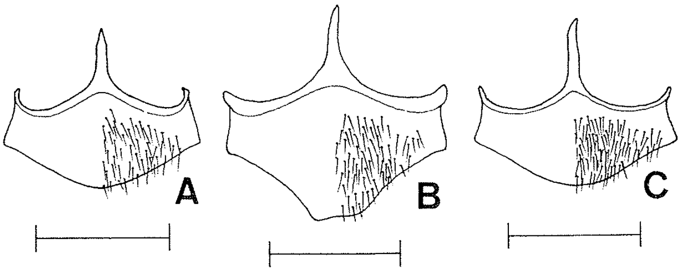

Fig. 10. Ventral views of male subgenital plates of *Netelia* (*Paropheltes*) spp. A, *N.* (*P.*) *strigosa* n. sp.; B, *N.* (*P.*) *terebrator* (ULBRICHT); C, *N.* (*P.*) *savchenkoi* TOLKANITZ. Scales: 0.5 mm.

Holotype: ♂, Shimashima-dani, Azumi-mura, Nagano Pref., 28. vii. 1981 (T. GOTÔ).

Paratypes: [Honshu] 1♂, Mt. Takashiro-yama, Tateiwa-mura, Fukushima Pref., 29. viii. 1992 (M. YOSHIDA), at light; 1♂, same locality as holotype, 27. vii. 1980 (H. TAKEMOTO).

Distribution. Japan (Honshu).

Remarks. This and following two species are resembling each other in the characters of paramere and thought to belong to the *barberi*-group.

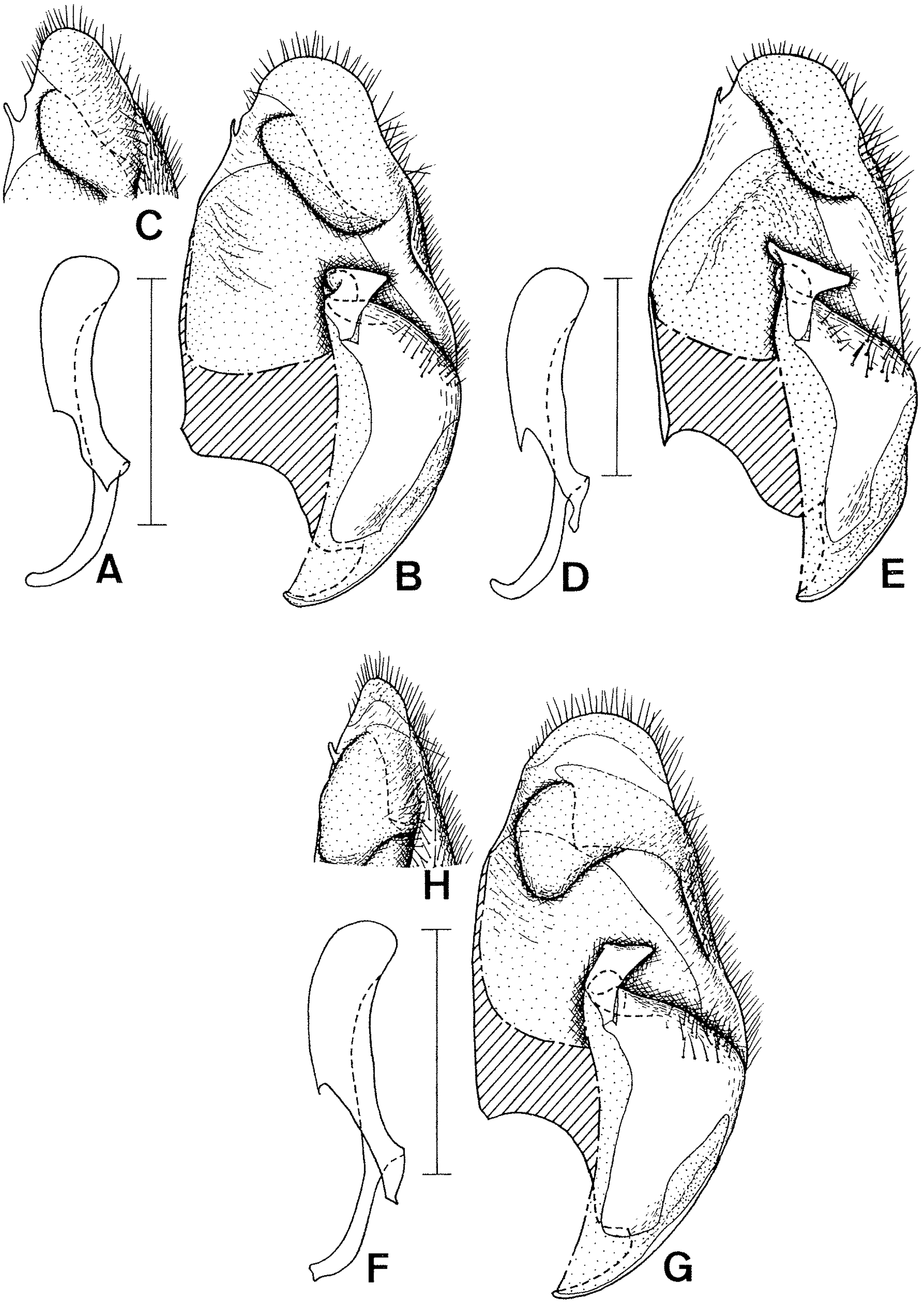

Fig. 11. Male genitalia of *Netelia* (*Parophelte*s) spp. A, D & F, Lateral views of aedeagi; B, E & G, median views of right parameres; C & H, ventro-median views of parameres to show shape of marginal spine; A–C, *N.* (*P.*) *strigosa* n. sp.; D & E, *N.* (*P.*) *terebrator* (ULBRICHT); F–H, *N.* (*P.*) *savchenkoi* TOLKANITZ. Scales: 0.5 mm.

Netelia (Paropheltes) terebrator (ULBRICHT, 1922)

(Figs. 7B, 7E, 8B, 9C–D, 10B, 11D–E & 12A–B)

Parabatus terebrator ULBRICHT, 1922, Konowia, **1**: 181.
Netelia terebrator: AUBERT, 1971, Bull. Soc. Ent. Mulhouse, **sept.–oct. 1971**: 72.
Netelia (Propheltes) terebrator: DELRIO, 1975, Studi Sass., (3), **23**: 33.

♀♂. Head (Figs. 7B & 7E) 1.7–1.8 times as wide as long; occipital carina present dorso-laterally, weak; lateral ocellus touching or almost touching eye (♂) and OOL : POL = 1 : 7 (♀); lower face 1.4–1.6 times as wide as long; clypeus 1.9–2.2 times as wide as long; gena 0.3–0.4 as long as width of mandibular base; flagellum 47–54-segmented; 1st flagellar segment 1.3–1.4 times as long as the 2nd, which is 3.6 (♀) and 2.8–3.2 (♂) times as long as wide.

Mesosoma (Fig. 8B): Mesoscutum 1.2–1.3 times as long as wide, with notaulus fading out at about posterior 1/3; mesoscutellum 1.5–1.8 times as long as distance between lateral carinae at its base, with lateral carina extending to anterior 0.3–0.5 and strongly convergent posteriorly, with weak longitudinal striae on posterior 1/6; propodeum weakly trans-striate on anterior 3/4, with lateral crest vestigial to strong.

Legs: Fore basitarsus 12.1–14.3 times as long as wide; fore tarsal claw with 11 (♀) and 19–29 (♂) pectines; hind tarsal claw with 12 (♀) and 13–24 (♂) pectines.

Forewing (Fig. 9C) 2.7–3.0 times as long as wide; cu-a distad Rs+M by about 1/3 of cu-a length, vertical or weakly inclivous; 1M+Cu bare on basal 3/4 and with sparse hairs on distal 1/4. Hindwing (Fig. 9D) with 6–8 distal hamuli; nervellar index 0.3–0.4.

Metasoma: First tergum 1.5–1.6 times as long as the 2nd; male subgenital plate (Fig. 10B) with posterior margin strongly convex; paramere (Fig. 11E) with dorsal and ventral margins tapering toward rounded apical margin, with a spine on dorso-apical margin, median membrane without papillae; brace moderately broad; base of pad broad, situated medially; pad membranous and weakly produced dorso-anteriorly; aedeagus (Fig. 11D) with basal apodeme weakly curved, with penis valve weakly broadened toward rounded apex.

Color: Head yellow; occiput, vertex and posterior half of temple and antenna reddish yellow; mandible brownish yellow except teeth brown. Mesosoma reddish yellow; anterior half of pronotum, lateral part of mesoscutellum and antero-dorsal and postero-ventral portions of mesepisternum yellow; mesoscutum and central area of mesoscutellum brownish yellow. Legs reddish yellow; hind tarsus whitish yellow. Wings hyaline; stigma pale brownish yellow. Metasoma yellowish red.

Ovarian egg (Figs. 12A–B) with a stalk on ventral margin near caudal end, 1.9–2.1 times as long as high; length 0.8 mm; height 0.4 mm; egg shell surface

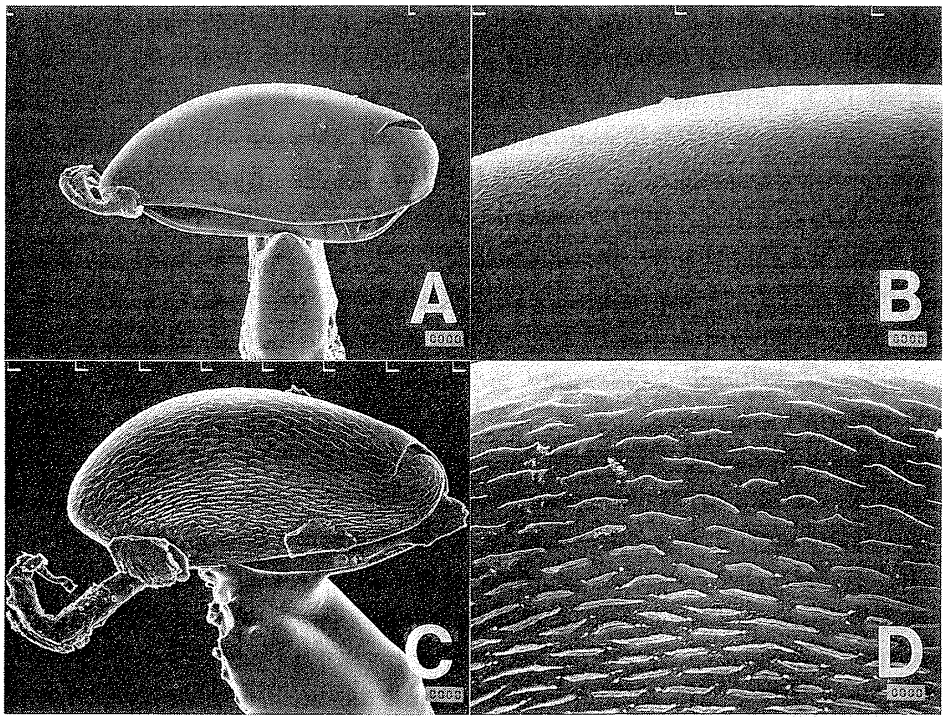

Fig. 12. Ovarian eggs of *Netelia* (*Paropheltes*) spp. A & C, Lateral views; B & D, enlargements to show surface sculpture; A & B, *N.* (*P.*) *terebrator* (ULBRICHT); C & D, *N.* (*P.*) *savchenkoi* TOLKANITZ.

weakly sculptured as in Fig. 12B.

Length of forewing: 7.6–12.0 mm.

Specimens examined. [Honshu] 1♂, Mt. Gassan, Yamagata Pref., 3. ix. 1966 (K. KUSIGAMATI); 1♂, Okukinu, Tochigi Pref., 21. vii. 1987 (S. NOMURA); 1♂ (29. iv. 1964), 1♂ (9. v. 1965) and 1♂ (14. viii. 1966), Mt. Takao-san, Tokyo, (J. MINAMIKAWA); 1♀, Mt. Syoto-san, Hinohara-mura, Tokyo, 1–2. vi. 1988 (S. SAITO); 2♂, Yazawa, Hinohara-mura, Tokyo, 13. vii. 1988 (H. NAGAOKA), at light.

Distribution. Japan (Honshu), Europe.

Remarks. This is the first record of this species from Japan. The characters of the Japanese specimens agree well with the redescription based on European ones by DELRIO (1975) except for the position of cu-a, *i.e.* cu-a is distad Rs + M by about 0.2 of the cu-a length in the European specimens and 0.33 of the cu-a length in the Japanese ones.

Netelia* (*Paropheltes*) *savchenkoi TOLKANITZ, 1981

(Figs. 7C, 7F, 8C, 9E–F, 10C, 11F–H & 12C–D)

Netelia (*Netelia*) *savchenkoi* TOLKANITZ, 1981, [Hym. Far East]: 35.

♀♂. Head 1.6–1.7 (Figs. 7C & 7F) times as wide as long; occipital carina present dorso-laterally, distinct; lateral ocellus almost touching eye or OOL: POL=1:4–1:5; lower face 1.3–1.4 times as wide as long; clypeus 1.9–2.2 times as wide as long; gena 0.3–0.4 as long as width of mandibular base; flagellum 48–52-segmented; 1st flagellar segment 1.3–1.4 times as long as the 2nd, which is 3.5–3.8 (♀) and 3.1–3.5 (♂) times as long as wide.

Mesosoma (Fig. 8C): Mesoscutum 1.2–1.3 times as long as wide, with notaulus fading out at about posterior 1/3; mesoscutellum 1.4–1.7 times as long as distance between lateral carinae at its base, with lateral carina extending to anterior 0.8 and strongly convergent posteriorly; longitudinally striate on posterior 0.2; propodeum weakly and sparsely punctate on anterior 1/3, strongly trans-striate on median 1/3, smooth on median portion of posterior 1/3 and longitudinally striate on lateral portion of posterior 1/3, or posterior 1/3 entirely smooth in some specimens, with lateral crest weak to strong.

Legs: Fore basitarsus 11.0–13.4 times as long as wide; fore tarsal claw with 9–10 (♀) and 12–17 (♂) pectines; hind tarsal claw with 9–10 (♀) and 10–15 (♂) pectines.

Forewing (Fig. 9E) 2.5–2.8 times as long as wide; cu-a varying from opposite Rs+M to distad Rs+M by about 1/4 of cu-a length, slightly reclivous to slightly inclivous; 1M+Cu almost bare except frontal margin. Hindwing (Fig. 9F) with 5–7 distal hamuli; nervellar index 0.2–0.3.

Metasoma: First tergum 1.6–1.7 times as long as the 2nd; male subgenital plate (Fig. 10C) with posterior margin weakly convex; paramere (Figs. 11G–H) with dorsal and ventral margins weakly tapering toward rounded apical margin, with a spine on dorso-apical margin, median membrane without papillae; brace moderately broad; base of pad moderately broad and situated near dorsal margin; pad membranous and strongly produced dorso-anteriorly; aedeagus (Fig. 11F) with basal apodeme weakly curved.

Color: Head yellow; occiput, dorsal half of temple and upper face except inner orbit reddish yellow; dorso-median portion of occiput, vertex and inter-ocellar area brownish yellow to yellowish brown; apical half of mandible brownish yellow except teeth brown; antenna reddish yellow. Mesosoma reddish yellow; anterior half of pronotum yellow; mesoscutum except anterior and lateral margins, mesoscutellum and dorsal surface of propodeum yellowish red to brown; antero-dorsal portion of mesepisternum brownish yellow in darker specimens. Legs reddish yellow; dorsal half of hind coxa yellowish red to yellowish brown; hind femur yellowish red in darker specimens; hind tarsus whitish yellow. Wings hyaline; stigma pale brownish yellow. Metasoma brownish red to brown.

Ovarian egg (Figs. 12C–D) with a long stalk on caudal 1/4 of ventral margin, 1.8–2.3 times as long as high; length 0.5–0.6 mm; height 0.3 mm; egg shell surface sculptured as in Fig. 12D.

Length of forewing: 7.7–9.4 mm.

Specimens examined. [Honshu] 1♂, Yokouchi-Yaegiku, Aomori City, Aomori Pref., 29. viii–5. ix. 1992 (T. ICHITA), sticky trap; 1♂, Nukumidaira–Kairagizawa, Mt. Iide-san (500–900 m), 19. vii. 1975 (O. YATA); 4♂, Yazawa, Hinohara-mura, Tokyo, 13–14. vii. 1988 (H. NAGAOKA), at light; 1♀, Masutomi (1100–1500 m), Kanaya, Yamanashi Pref., 24. viii. 1975 (O. YATA); 1♂, Mt. Fuji-san, 22. vii. 1956 (J. MINAMIKAWA); 1♂, Shin-hodaka, Gifu Pref., 12. vii. 1969 (A. NAGATOMI); 1♂, Dainichigawa, Gifu Pref., 13. vii. 1975 (A. NAGATOMI). [Shikoku] 1♂, Teragawa, Hongawa, Kochi Pref., 22. vii. 1989 (I. YAMASHITA), at light. [Kyushu] 1♀, Momiki-Mt. Kamifukune, Kumamoto Pref., 20. vii. 1966 (A. TANAKA); 1♀3♂ (9–11. vii. 1978, A. NAGATOMI *et al.*), 1♂ (4. x. 1979, T. GOTÔ, at light) and 1♀ (4. vii. 1983, K. ÔHARA), Mt. Shiratori-yama, Izumi-mura, Kumamoto Pref.

Distribution. Japan (Honshu, Shikoku, Kyushu), Russia (Primorskii Krai).

Remarks. This species was originally described as a member of the subgenus *Netelia*, but should be transferred to *Parophletes* because of having the following characters: Lateral carina of mesoscutellum not extending to its entire length, fading out at about anterior 0.8 of mesoscutellum; cu-a opposite Rs+M in some specimens; interocellar area not black, brownish yellow to yellowish brown.

This is the first record of this species from Japan.

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References

AUBERT, J. F., 1971. Addendum (1). *Bull. Soc. Ent. Mulhouse*, **sept.-oct. 1971**: 70–72.

BRISCHKE, C. G., 1880. Ichneumoniden der Provinzen West- und Ostpreussen. *Schrift. naturf. Ges. Danzig*, **4**: 108–210.

CAMERON, P., 1907. Description of a new genus and some new species of Hymenoptera captured by lieut.-col. C. G. NURSE at Deesa, Matheran and Ferozepore. *J. Bombay nat. Hist. Soc.*, **17**: 1001–1012.

CHA, J.-Y. & J.-W. LEE, 1988. A systematic study of the Ichneumonidae (Hymenoptera) from Korea IX. The tribe Phytodietini (Tryphoninae). *Korean J. Syst. Zool.*, **4**: 147–164.

DALLA TORRE, C. G. DE, 1901. Catalogus Hymenopterorum hucusque descriptrum systematicus et synonymicus, **3**, 1141 pp., Lipsiae.

DELRIO, G., 1975. Revision des espèces ouest-paléarctiques du genre *Netelia* GRAY (Hym., Ichneumonidae). *Studi Suss.*, (3), **23**: 3–126.

ENDERLEIN, G., 1912. Beiträge zur Kenntnis aussereuropäischer Ichneumoniden. I. Paniscinae. *Stettin. ent. Ztg.*, **73**: 105–144.

GRAY, J. E., 1860. On the hook on the front edge of the hind wing of certain Hymenoptera. *Ann. Mag. nat. Hist.*, (3), **5**: 339–342.

HAMMOND, H. E. & K. G. V. SMITH, 1960. On some parasitic Diptera and Hymenoptera bred from lepidopterous hosts. Part IV, miscellaneous records of Braconidae, Ichneumonidae and Eulophidae (Hym.). *Ent. Gaz*, **11**: 50–54.

KAUR, R. & J. K. JONATHAN, 1979. Ichneumonologia orientalis, Part VIII. The tribe Phytodietini from India (Hymenoptera: Ichneumonidae). *Oriental Ins. Monogr.*, **9**: 1–276.

KOKUJEV, N., 1899. Revisio specierum rossicarum ad Ichneumoniderum genus *Paniscus* GRAV. pertinentium. *Horae Soc. ent. Ross.*, **34**: 128–152.

KONISHI, K., 1985. A revision of the subgenus *Parabates* FOERSTER of the genus *Netelia* GRAY from Japan (Hymenoptera, Ichneumonidae). *Kontyu, Tokyo*, **53**: 616–624.

————, 1986a. A revision of the subgenus *Apatagium* ENDERLEIN of the genus *Netelia* GRAY from Japan (Hymenoptera, Ichneumonidae). *Ibid.*, **54**: 261–270.

————, 1986b. A new subgenus and species of the genus *Netelia* (Hymenoptera, Ichneumonidae) from New Guinea. *Ibid.*, **54**: 415–419.

————, 1991. A revision of the subgenus *Prosthodocis* ENDERLEIN of the genus *Netelia* GRAY of Japan (Hymenoptera, Ichneumonidae), I. *Jpn. J. Ent.*, **59**: 775–788.

————, 1992. A revision of the subgenus *Prosthodocis* ENDERLEIN of the genus *Netelia* GRAY of Japan (Hymenoptera, Ichneumonidae), II. *Ibid.*, **60**: 39–53.

MATSUMURA, S., 1931. 6000 Illustrated insects of Japan-Empire. 2, 3, 3, 23, 1497, 191 pp., 10 pls. Toko-shoin, Tokyo. (In Japanese.)

MORLEY, C. & W. RAIT-SMITH, 1933. The Hymenopterous parasites of the British Lepidoptera. *Trans. R. ent. Soc. London*, **81**: 133–183.

RICHARDS, O. W., 1977. Hymenoptera. Introduction and key to families. *Handb. Ident. Br. Ins., (2nd ed.)*, **6**: 1–100.

SNODGRASS, R. E., 1941. The male genitalia of Hymenoptera. *Smithson. misc. Collns.*, **99**(14): 1–86, 33 pls.

TOLKANITZ, V. I., 1974. Revision of the genus *Netelia* (Hymenoptera, Ichneumonidae) and review of species of the fauna of the USSR. *Zool. Zh.*, **53**: 376–393. (In Russian with English summary.)

————, 1981a. Fauna Ukraini. [Vol. 11. Parasitic Hymenoptera. Part 1. Ichneumonidae-Phytodietini.] 148 pp. Akademia Nauk Ukrainskoi SSR, Kiev. (In Ukrainian.)

TOLKANITZ, V. I., 1981b. [Ichneumonid genus *Netelia* (Hymenoptera, Ichneumonidae) of Far East.] *In*: [*Hym. Far East*] pp. 26–40. Vladovostok. (In Russian.)

TOWNES, H., 1938. The Nearctic species of *Netelia* (*Paniscus* of authors) and a revision of the genera of Netelini. *Lloydia*, **1**: 168–231.

————, 1969. The genera of Ichneumonidae, Part 1. *Mem. Am. ent. Inst.*, **11**: 1–300.

————, S. MOMOI & M. TOWNES, 1965. A catalogue and reclassification of the Eastern Palearctic Ichneumonidae. *Ibid.*, **5**: 1–661.

————, M. TOWNES & V. K. GUPTA, 1961. A catalogue and reclassification of the Indo-Australian Ichneumonidae. *Ibid.*, **1**: 1–522.

UCHIDA, T., 1928. Zweiter Beitrag zur Ichneumoniden-Fauna Japans. *J. Fac. Agric., Hokkaido* (*imp.*) *Univ.*, **21**: 177–297.

————, 1934. Beiträge zur Systematik der Tribus Paniscini Japans (Hym., Ichneum. Tryphoninae). *Ins. matsum.*, **8**: 107–115.

————, 1935. Beitrage zur Kenntnis der Ichneumonidenfauna der Kurilen. *Ibid.*, **9**: 108–122.

————, 1942. Ichneumoniden Mandschukuos aus dem entomologischen Museum der kaiserlichen Hokkaido Univeresitaet. *Ibid.*, **16**: 107–146.

ULBRICHT, A., 1922. Neue deutsche Ichneumoniden. *Konowia*, **1**: 181–184.

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First record of *Reuterella helvimacula* (ENDERLEIN) (Psocoptera: Elipsocidae) from Japan[1]

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Key words: *Reuterella helvimacula*; Elipsocidae; new locality; Japan.

Reuterella helvimacula (ENDERLEIN, 1901) of the family Elipsocidae is a small brown or dark blackish brown psocid known from North America and Eurasia throughout Europe eastward to Mongolia (MOCKFORD, 1993). This species inhabits on tree barks and stone outcrops, usually under dense silk webs in a colony or singly (GÜNTHER, 1974; MOCKFORD, 1993). The species shows a distinct sexual dimorphism (Fig. 2): The male is winged, while the female is apterous, lacking ocelli and trichobothria, and having shorter antennae. For detail description of the species, see GÜNTHER (1974).

Recently I collected many specimens of *Reuterella helvimacula* at Mt. Hikosan of Fukuoka Prefecture, Kyushu, Japan. They were found on an old stone monument and most of them colonized under silk webs (Fig. 1). This is the first record of the species, also of the

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